Qualification

Level

Automation 11 - Group Requirement (FQP)

Workbook

April 2021

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Contents

Introduction

This is the first level heading iv

Appendix 1: Formulae, ratios and mathematical tables v

Bibliography xiii

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This is my introduction content section.

Appendix 1: Formulae, ratios and mathematical tables

Appendices

Appendix A: Formulae and ratios that you need to learn

Profitability ratios:

$$\text{ROCE} = \frac{\text{Profit from operations (before interest and tax)}}{\text{Capital employed}}$$

Debt ratios include:

$$\text{Gearing} = \frac{\text{Value of debt}}{\text{Value of equity (or debt + equity)}}$$

$$\text{Interest cover} = \frac{\text{Profit from operations}}{\text{Interest}}$$

Liquidity ratios:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$$

Shareholder investor ratios include:

$$\text{Dividend yield} = \frac{\text{Dividend per share}}{\text{Share price}} \times 100$$

$$\text{Earnings per share (EPS)} = \frac{\text{Profits after tax - preference dividend}}{\text{Number of ordinary shares}}$$

$$\text{Price to earnings ratio (P/E)} = \frac{\text{Share price}}{\text{EPS}}$$

Working capital ratios

Operating cycle = inventory days + receivable days – payables days

Inventory days = inventory/cost of sales × 365

Receivables days = trade receivables/(credit) sales × 365

Payables days = trade payables/(credit) purchases × 365

Sales to net working capital ratio = sales/net working capital (excl cash)

Cost of capital formulae:

$$K_d = \frac{I(1 - t)}{P_0}$$

$$K_p = \frac{d}{p}$$

Other useful formulae to learn:

$$IRR = a\% + \left[\frac{NPV_a}{NPV_a - NPV_b} \times (b\% - a\%)\right]$$

$$\text{Total shareholder return} = \frac{\text{dividend gain + capital}}{\text{share price at start year}}$$

$$EAC = \frac{\text{NPV of costs}}{\text{Annuity factor for life of the project}}$$

$$\text{Profitability index} = \frac{\text{Present value of cash inflows (or NPVof the project)}}{\text{Present value of cash outflows}}$$

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Appendix B: Mathematical tables

Present Value Table

Annuity Table

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Formula Sheet

Economic Order Quantity

$$= \sqrt{\frac{2C_O D}{C_H}}$$

Miller-Orr Model

$$\text{Return point} = \text{Lower limit} + \left(\frac{1}{3} \times \text{spread}\right)$$

$$\text{Spread} = 3\left[\frac{\frac{3}{4} \times \text{transaction cost} \times \text{variance of cash flows}}{\text{Interest rate}}\right]^{\frac{1}{3}}$$

The Capital Asset Pricing Model

$$E(n) = R_f + \beta_i(E(r_m) - R_f)$$

The asset beta formula

$$\beta_a = \left[\frac{V_e}{(V_e + V_d(1-T))}\beta_e\right] + \left[\frac{V_d(1-T)}{(V_e + V_d(1-T))}\beta_d\right]$$

The Growth Model

$$P_O = \frac{D_O(1 + g)}{(r_e - g)} \qquad r_e = \frac{D_O(1 + g)}{P_O} + g$$

Gordon's Growth Approximation

$g = br$

The weighted average cost of capital

$$WACC = \left[\frac{v_e}{v_e + v_d}\right]k_e + \left[\frac{v_d}{v_e + v_d}\right]k_d(1 - T)$$

The Fisher formula

$$(1 + i) = (1 + r)(1 + h)$$

Purchasing Power Parity and Interest Rate Parity

$$S_1 = S_0 \times \frac{(1 + h_c)}{(1 + h_b)} \times \frac{(1 + i_c)}{(1 + i_b)} \qquad F_0 = S_0$$

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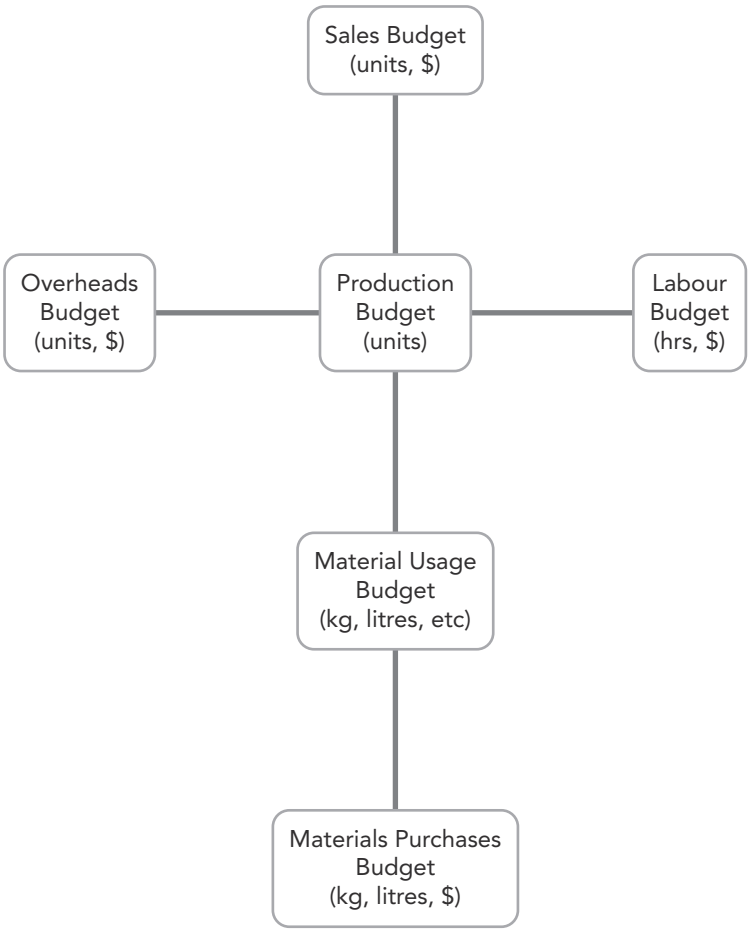
Watson, D. and Head, A. (2013) *Corporate Finance principles and practice*. 6th edn. London, Pearson Education Limited.



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